

Environmental Protection Agency

§ 86.1227-96

- (ii) FID_{ppm} = FID reading in ppmC.
- (iii) SAM_{ppm} = methanol concentration in the sample bag, or gas bottle, in ppmC. SAM_{ppm} for sample bags:

$$= \frac{0.02406 \times \text{Fuel injected} \times \text{Fuel density}}{\text{Air volume} \times \text{Mol. Wt. CH}_3\text{OH}}$$

Where:

(iv) 0.02406 = Volume of one mole at 29.92 in Hg and 68 °F, m³.

(v) Fuel injected = Volume of methanol injected, ml.

(vi) Fuel density = Density of methanol, 0.7914 g/ml.

(vii) Air volume = Volume of zero grade air, m³.

(viii) Mol. Wt. CH₃OH = 32.04.

(d) The gas chromatograph used in the analysis of methanol samples shall be calibrated at least monthly following manufacturers' recommended procedures (certain equipment may require more frequent calibration based on use and good engineering judgment).

(e) *FID response factor to methane.* When the FID analyzer to be used for the analysis of natural gas-fueled vehicle hydrocarbon samples has been calibrated using propane, the methane response factor of the analyzer shall be established. To determine the total hydrocarbon FID response to methane, known methane in air concentrations traceable to National Institute of Standards and Technology (NIST) shall be analyzed by the FID. Several methane concentrations shall be analyzed by the FID in the range of concentrations in the exhaust sample. The total hydrocarbon FID response to methane is calculated as follows:

$$r_{CH_4} = FID_{ppm} / SAM_{ppm}$$

Where:

(1) r_{CH_4} = FID response factor to methane.

(2) FID_{ppm} = FID reading in ppmC.

(3) SAM_{ppm} = the known methane concentration in ppmC.

[54 FR 14566, Apr. 11, 1989, as amended at 59 FR 48523, Sept. 21, 1994; 60 FR 34361, June 30, 1995]

§ 86.1226-85 Calibration of other equipment.

Other test equipment used for testing shall be calibrated as often as required

by the manufacturer or as necessary according to good practice.

§ 86.1227-90 Test procedures; overview.

(a) The overall test consists of prescribed sequences of fueling, parking, and operating conditions. Vehicles are tested only for evaporative emissions.

(b) The evaporative emission test (gasoline-fueled and methanol-fueled vehicles) is designed to determine hydrocarbon and/or methanol evaporative emissions as a consequence of diurnal temperature fluctuation, urban driving and hot soaks during engine-off periods. It is associated with a series of events representative of heavy-duty vehicle operation, which result in hydrocarbon and/or methanol vapor losses. The test procedure is designed to measure:

(1) Diurnal breathing losses resulting from daily temperature changes, measured by the enclosure technique;

(2) Running losses from suspected sources (if indicated by engineering analysis or vehicle inspection) resulting from a simulated trip on a chassis dynamometer, measured by carbon traps; and

(3) Hot soak losses which result when the vehicle is parked and the hot engine is turned off, measured by the enclosure technique.

(c) Background concentrations are measured for all species for which emissions measurements are made. For evaporative testing, this requires measuring initial concentrations. (When testing methanol-fueled vehicles, manufacturers may choose not to measure background concentrations of methanol, and then assume that the concentrations are zero during calculations.)

[54 FR 14568, Apr. 11, 1989, as amended at 60 FR 34363, June 30, 1995]

§ 86.1227-96 Test procedures; overview.

(a) The overall test consists of prescribed sequences of fueling, parking, and operating conditions. Vehicles are tested only for evaporative emissions.

(b) The evaporative emission test (gasoline-fueled, natural gas-fueled, liquefied petroleum gas-fueled, and methanol-fueled vehicles) is designed